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Workshop RIDF 10-11 october 2006 USACE - Louisiana

Infrastructuur | Milieu | Gebouwen

Inner Harbor Navigation Canal Alternatives Study

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Introduction

- Conceptual study on two floodgates & alternatives
- USA – Dutch project; transfer of Dutch technology
- ARCADIS (USA & Netherlands) & WL Delft Hydraulics
- US Army Corp of Engineers NO District
- Key elements in NO Hurricane Protection System
- Type of gates, locations, alternatives, costs

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Flood control system in New Orleans

- HPS: Flood walls, levees, pump stations and…gates
- Closure of navigable canals during hurricanes
- Innner Harbor Navigational Canal
  - IHNC Seabrook : already design (80’)
  - GIWW/MRGO : unknown
- SPH, 100 year protection level
- Prior to re-evaluating storm surge
- 350 M $ budget by congress for the two gates

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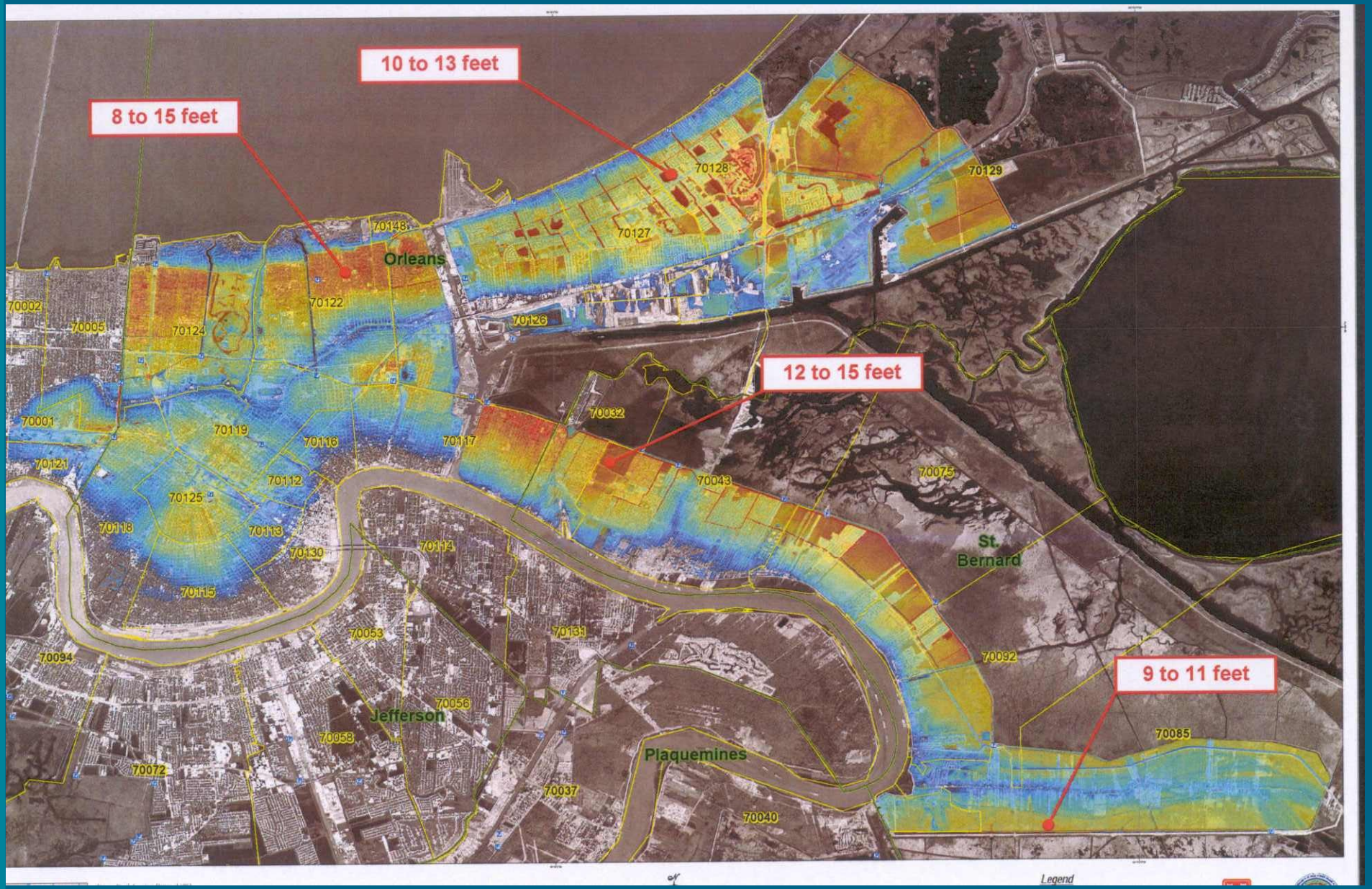
10 to 13 feet
8 to 15 feet
12 to 15 feet
9 to 11 feet
Orleans
Jefferson
Plaquemines
St. Bernard
70128
70129
70148
70127
70002
70005
70124
70122
70126
70001
70119
70116
70117
70032
70121
70112
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70043
70075
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70037
70040
Legend

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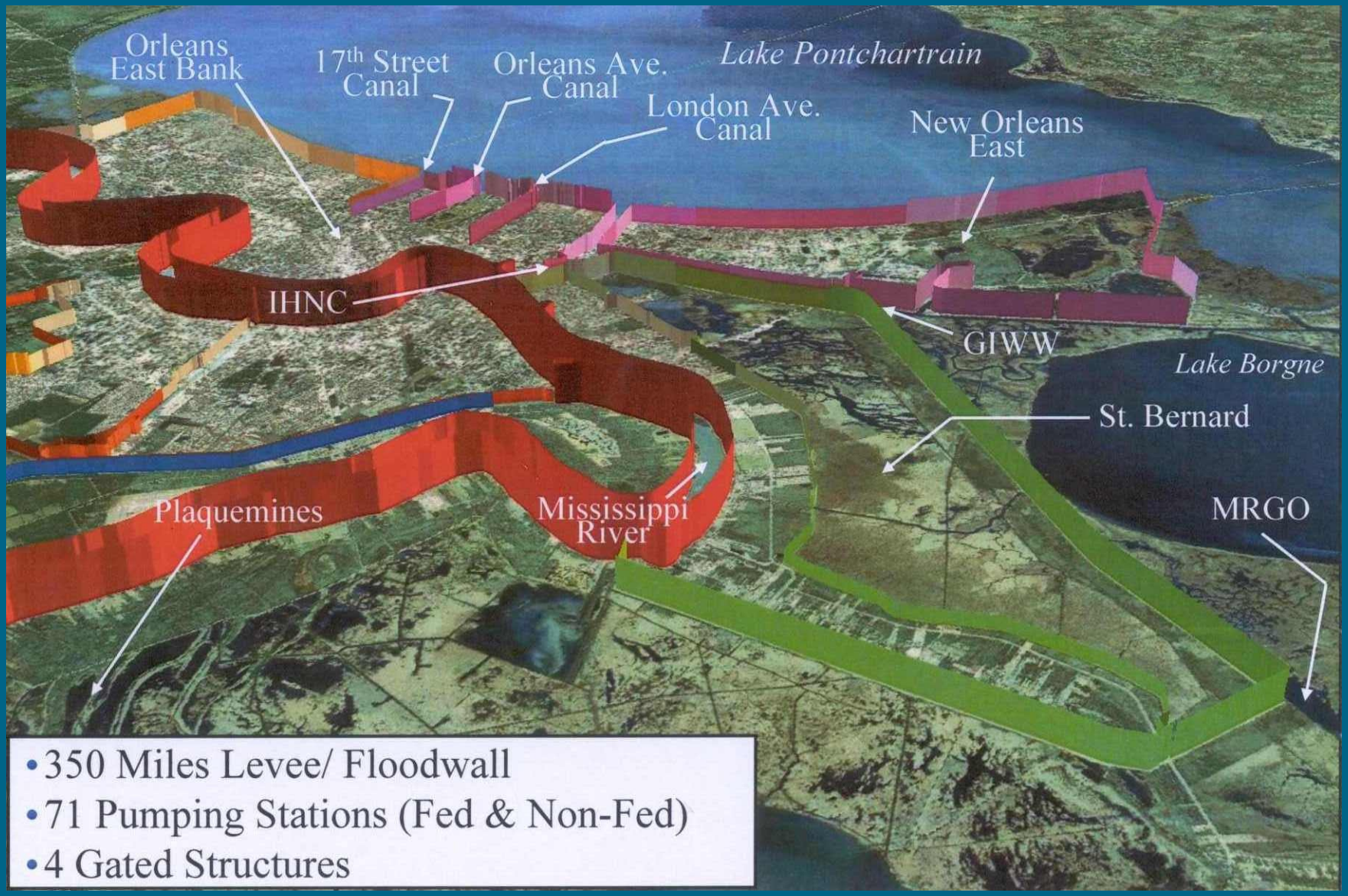
Orleans East Bank
17th Street Canal
Orleans Ave. Canal
London Ave. Canal
Lake Pontchartrain
New Orleans East
IHNC
GIWW
Lake Borgne
St. Bernard
Plaquemines
Mississippi River
MRGO
• 350 Miles Levee/ Floodwall
• 71 Pumping Stations (Fed & Non-Fed)
• 4 Gated Structures

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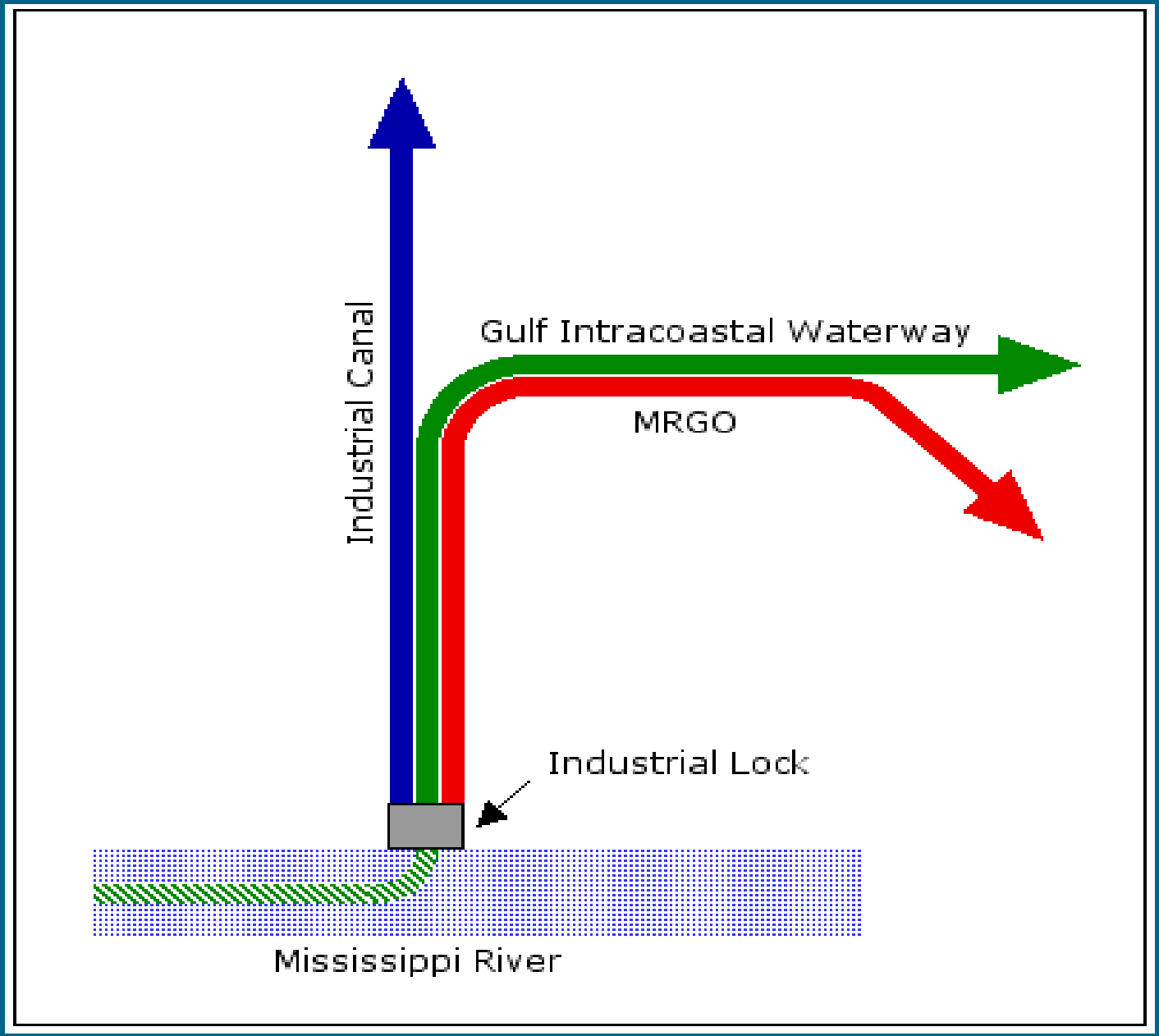
Industrial Canal
Gulf Intracoastal Waterway
MRGO
Industrial Lock
Mississippi River

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The conceptual study

- Overview of navigable gate types
- Proposed gate designs & sites
  - Levees and floodwalls
  - Hydraulics
  - engineering
  - Navigation
  - Environment
- Conceptual level cost estimates

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The flood gates: floating sector gate

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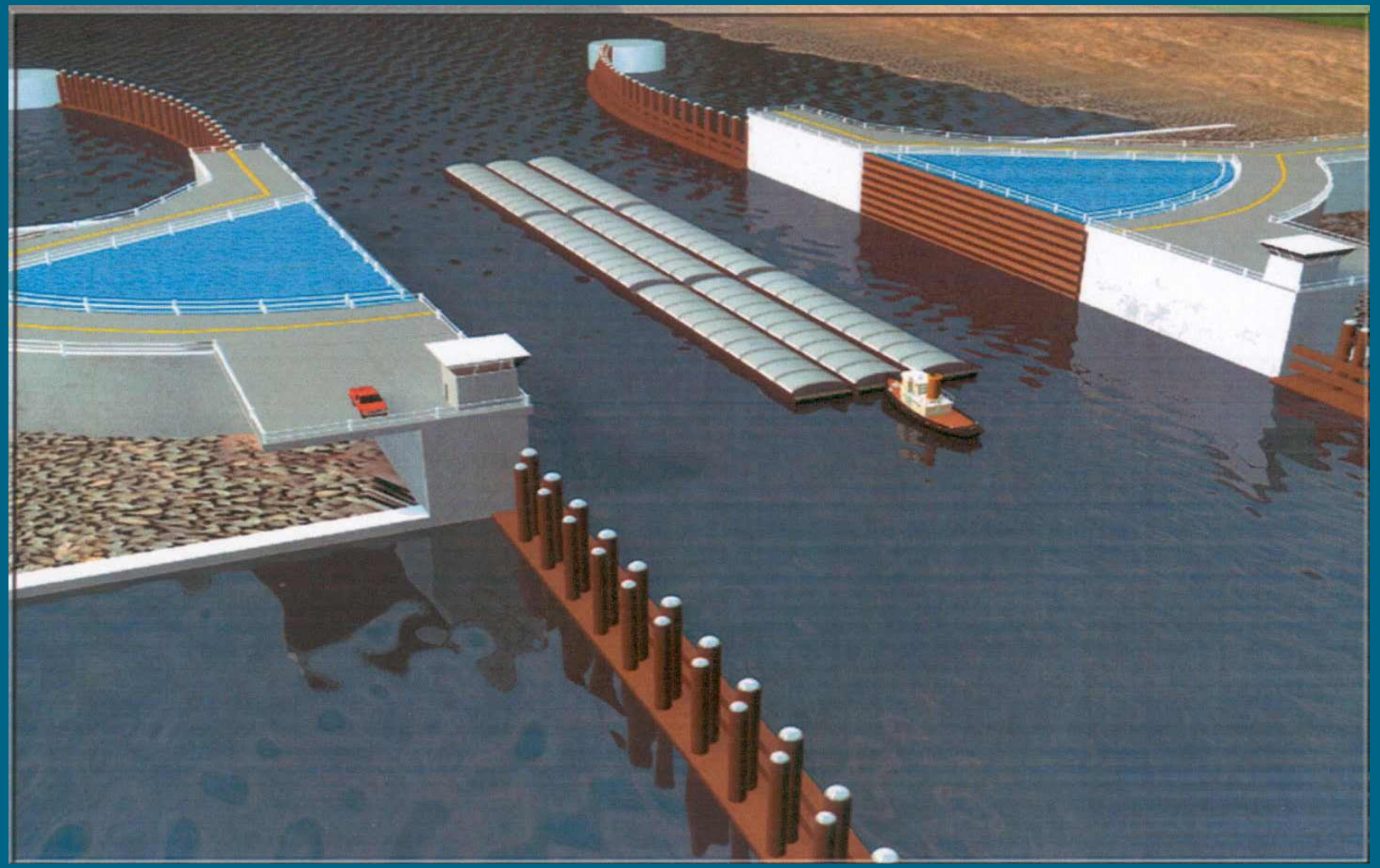
The flood gates: sector gate



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The flood gates: conceptual design

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First results

- GIWW: 350 foot wide floating sector gate;
- IHNC: 110 foot wide sector gate
- No impact to salinity
- No HTRW
- Mitigation required for wetlands
- Very soft foundations, overall subsidence

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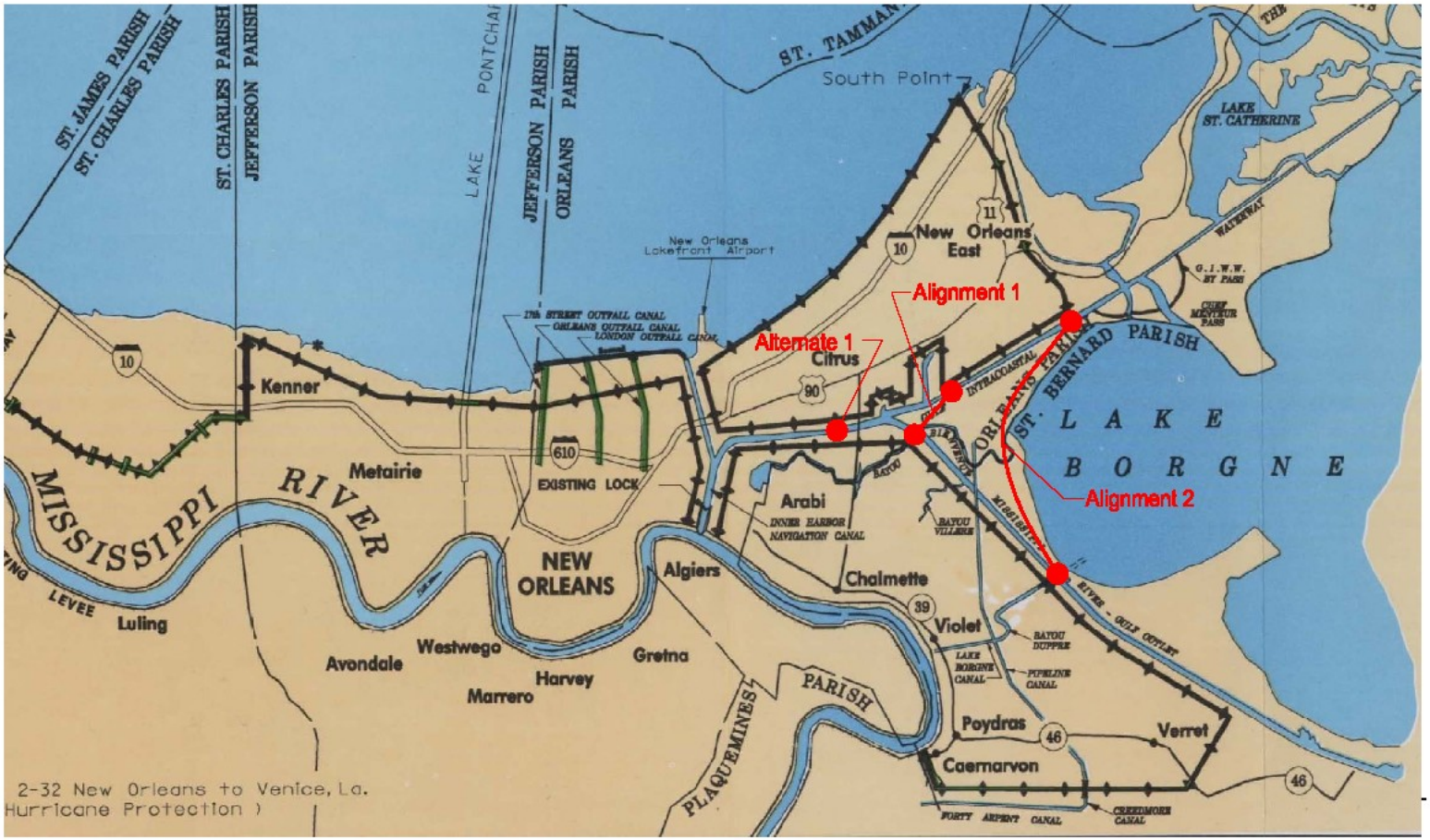
Alternatives



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Alternatives

- Baseline alternative I: two floodgates, one within GIWW, one in INHC at Seabrook location
- Alternative II: structures in the GIWW and MRGO, modifications to existing levees and floodwalls and new levee configurations (Alignment 1 and Alignment 2)
- Alternative III: raising level of protection along the IHNC and GIWW to authorized grade 1 (option 1) and 100-year level of protection (option 2). Alignment A similar to current alignment, Alignment B partially new offset
- Alternative IV: Internal evaluation of initial findings:
  - Re-route GIWW channel
  - Alternative I as a shallow draft structure

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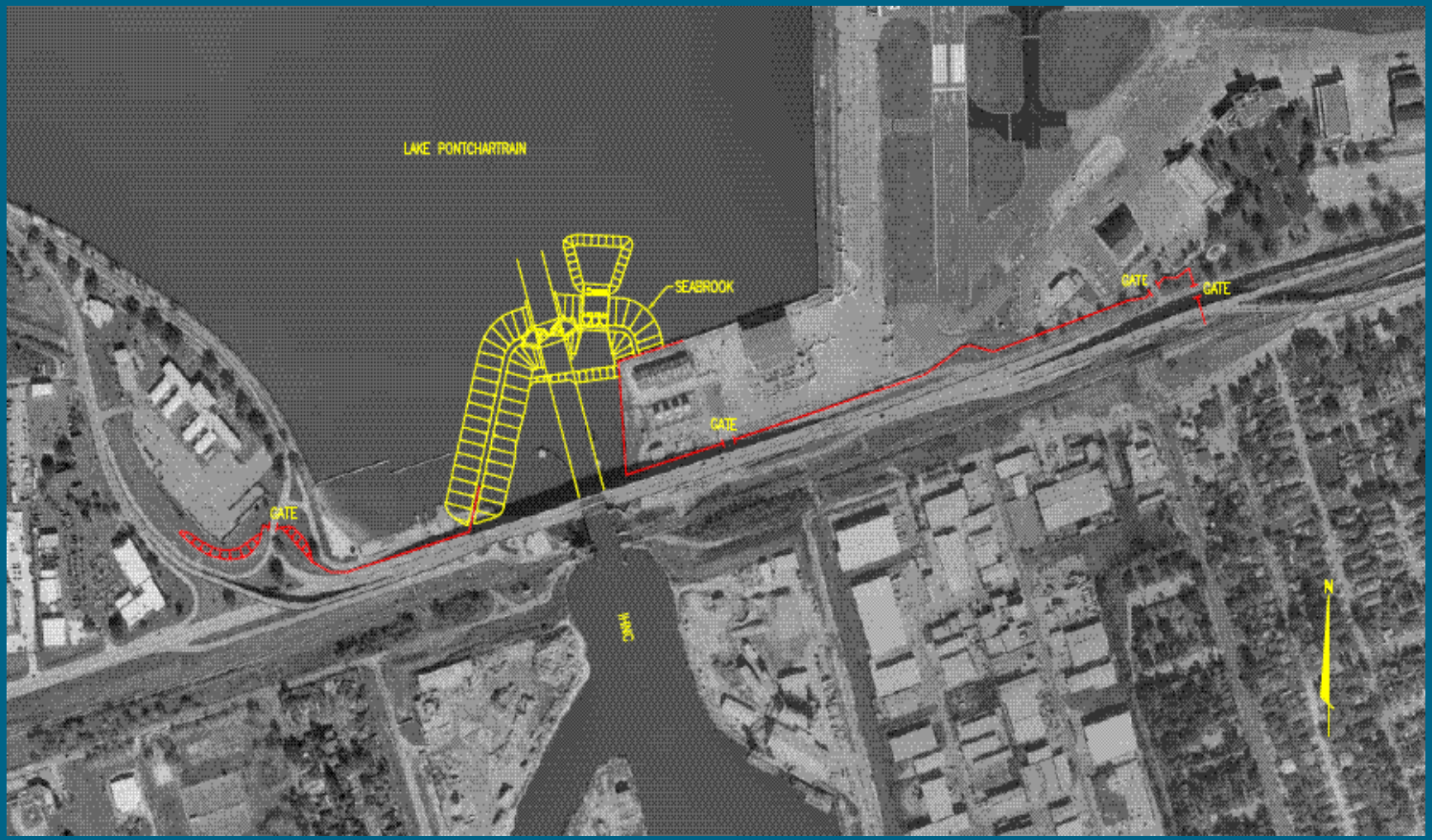
Baseline alternative I – Seabrook



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Alternative II – Alignment 1 – Overall view

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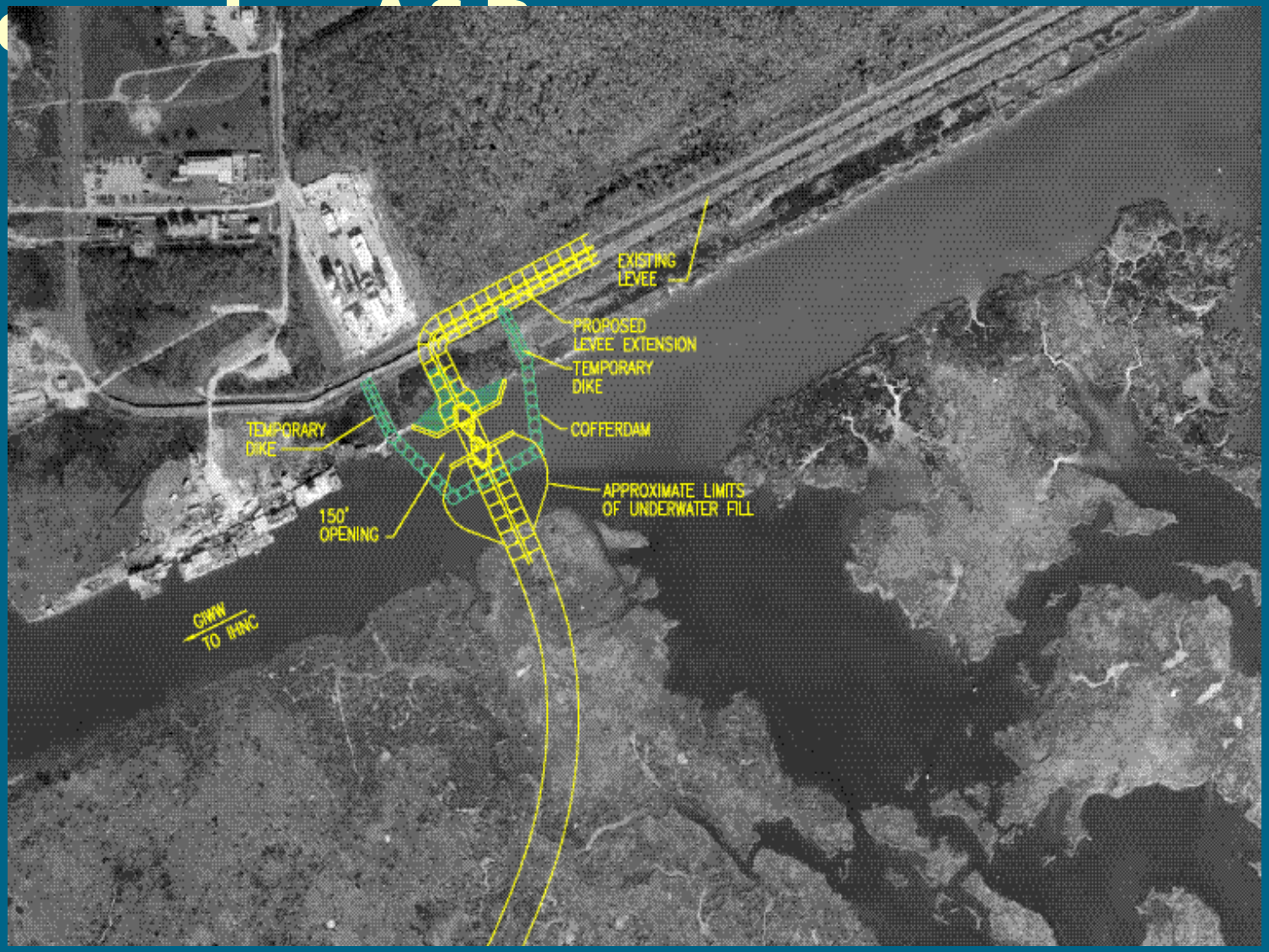
Alternative II, alignment 1, S



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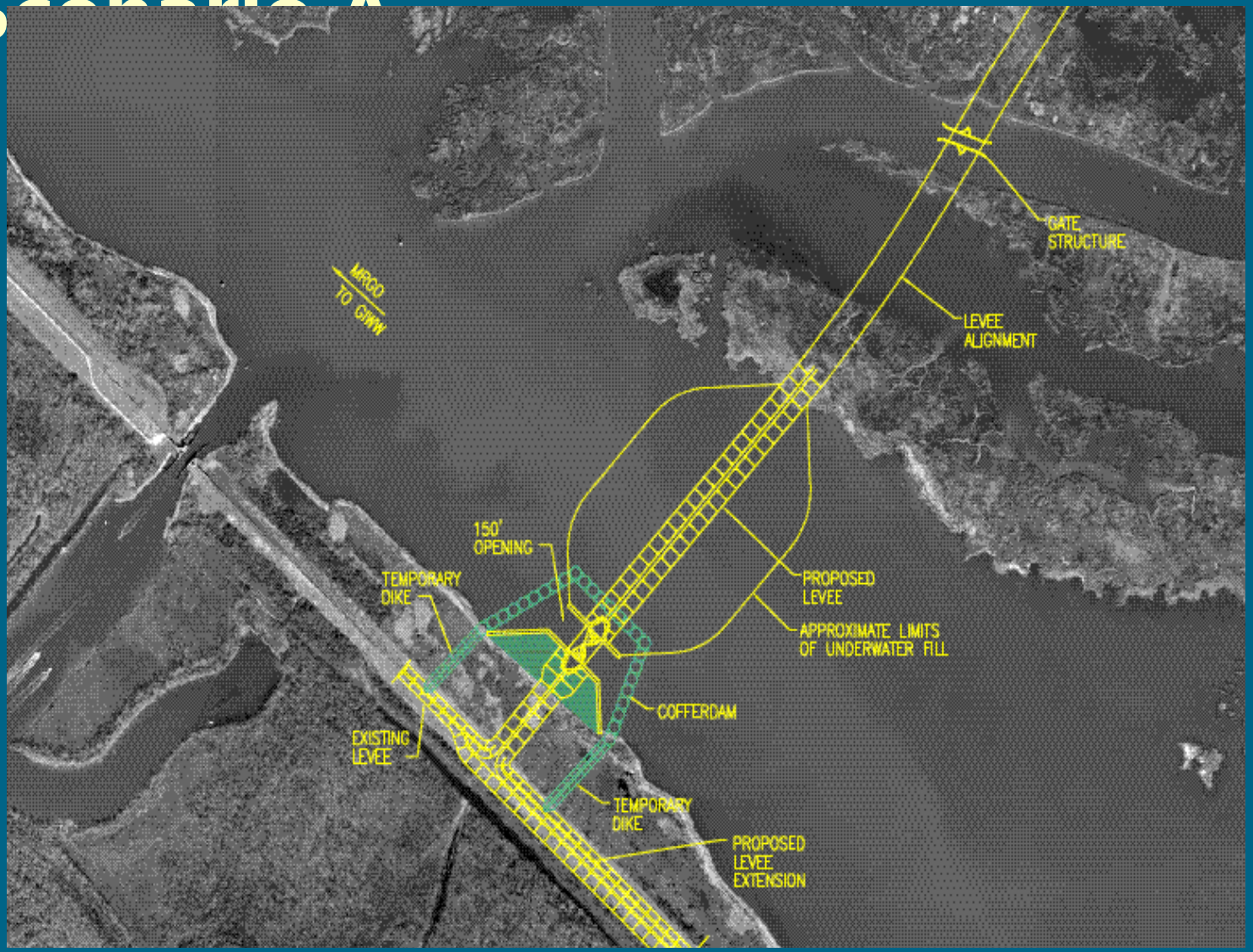
Alternative II – Alignment 1 – Scenario A



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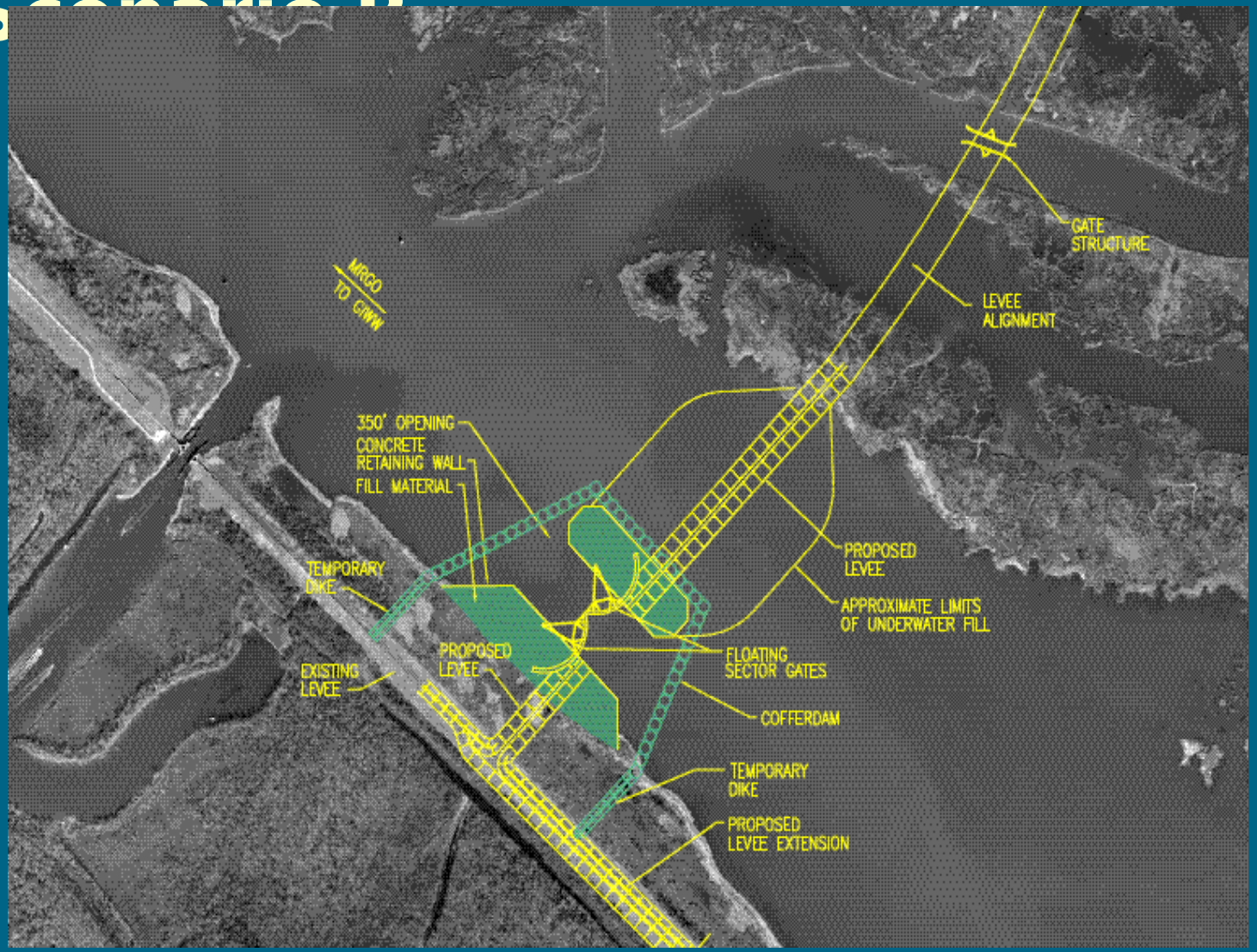
Alternative II – Alignment 1 – Scenario B



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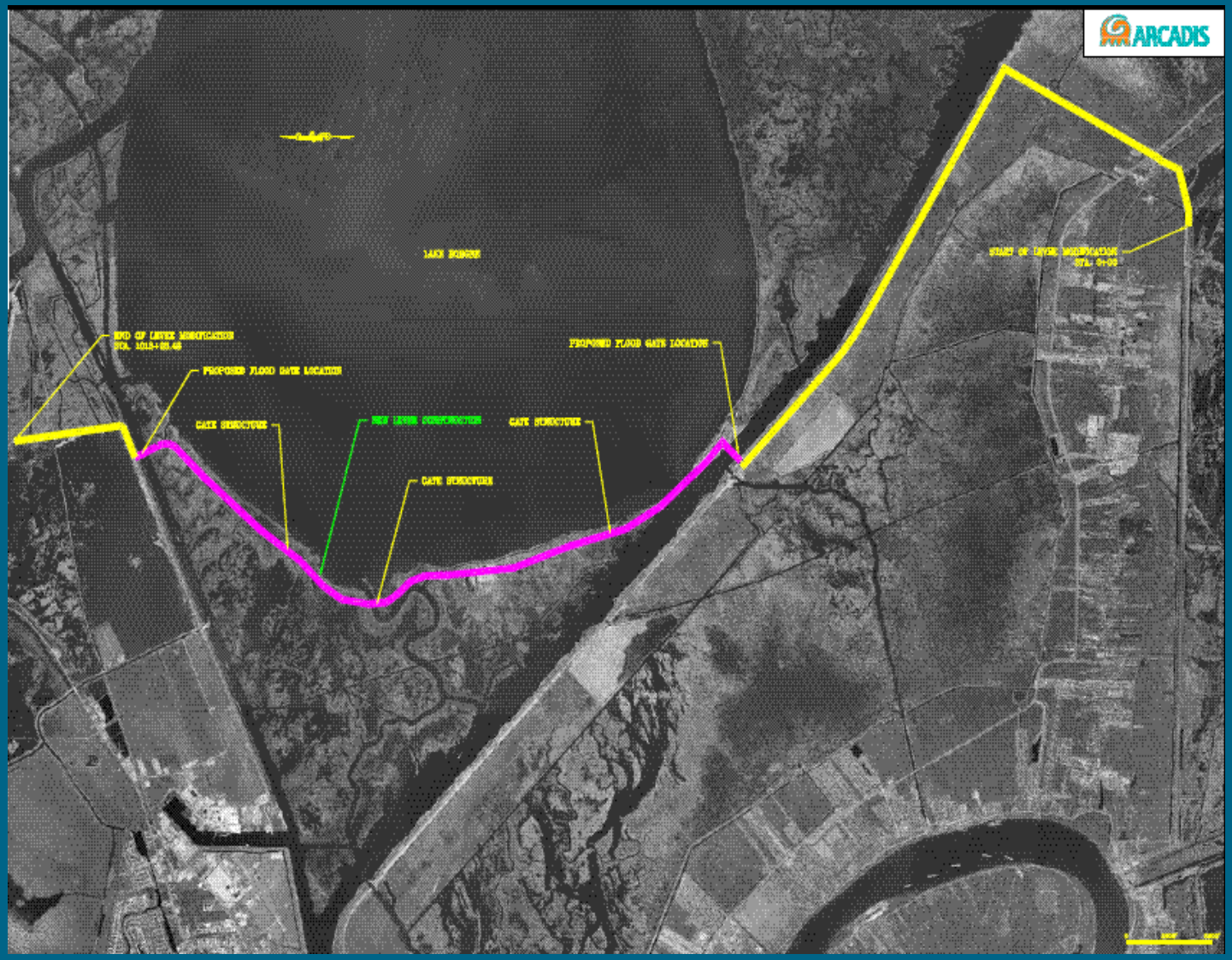
Alternative II – Alignment 2



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Alternative II – Alignment 2

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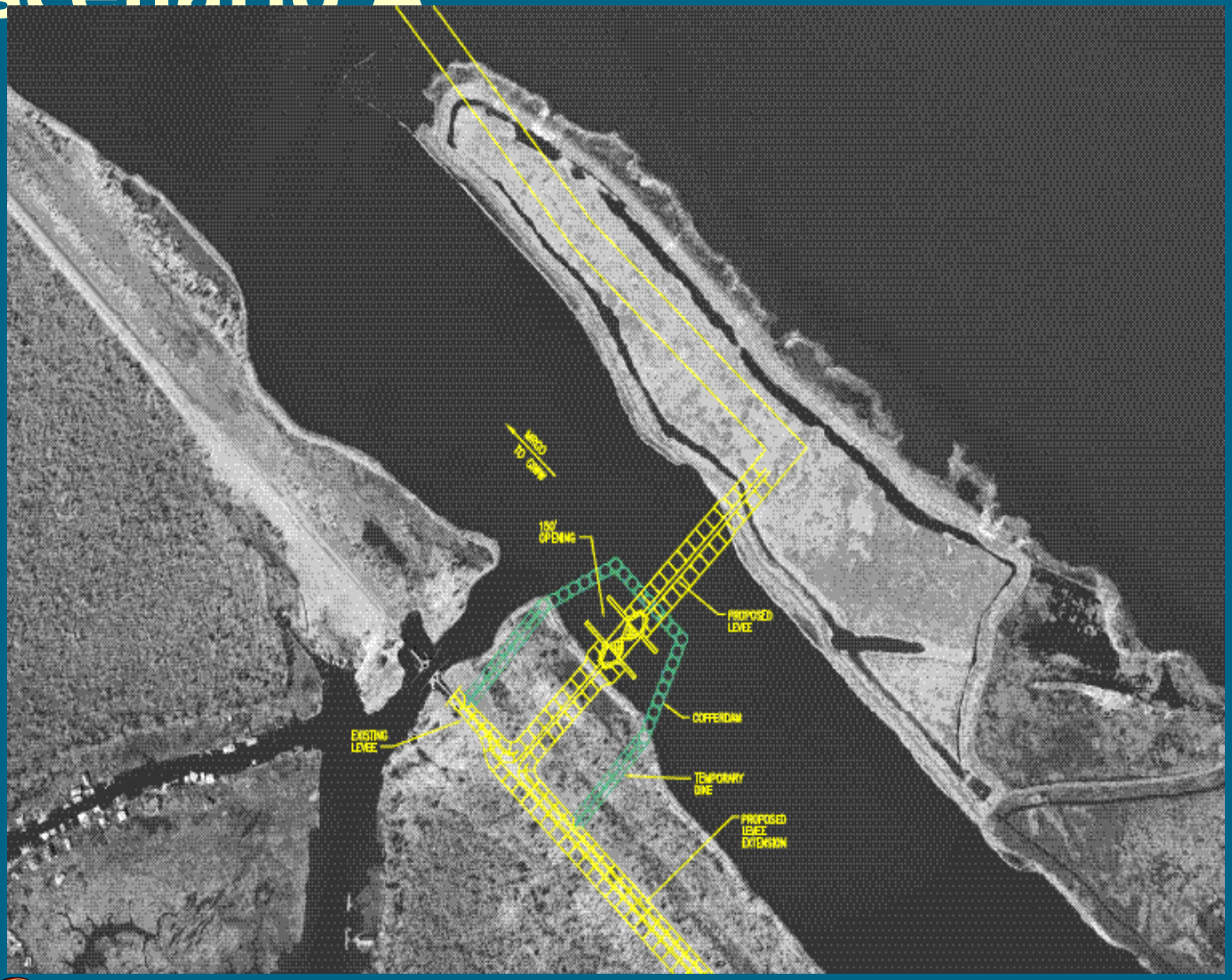
Alternative II – Alignment 2 – scenario A



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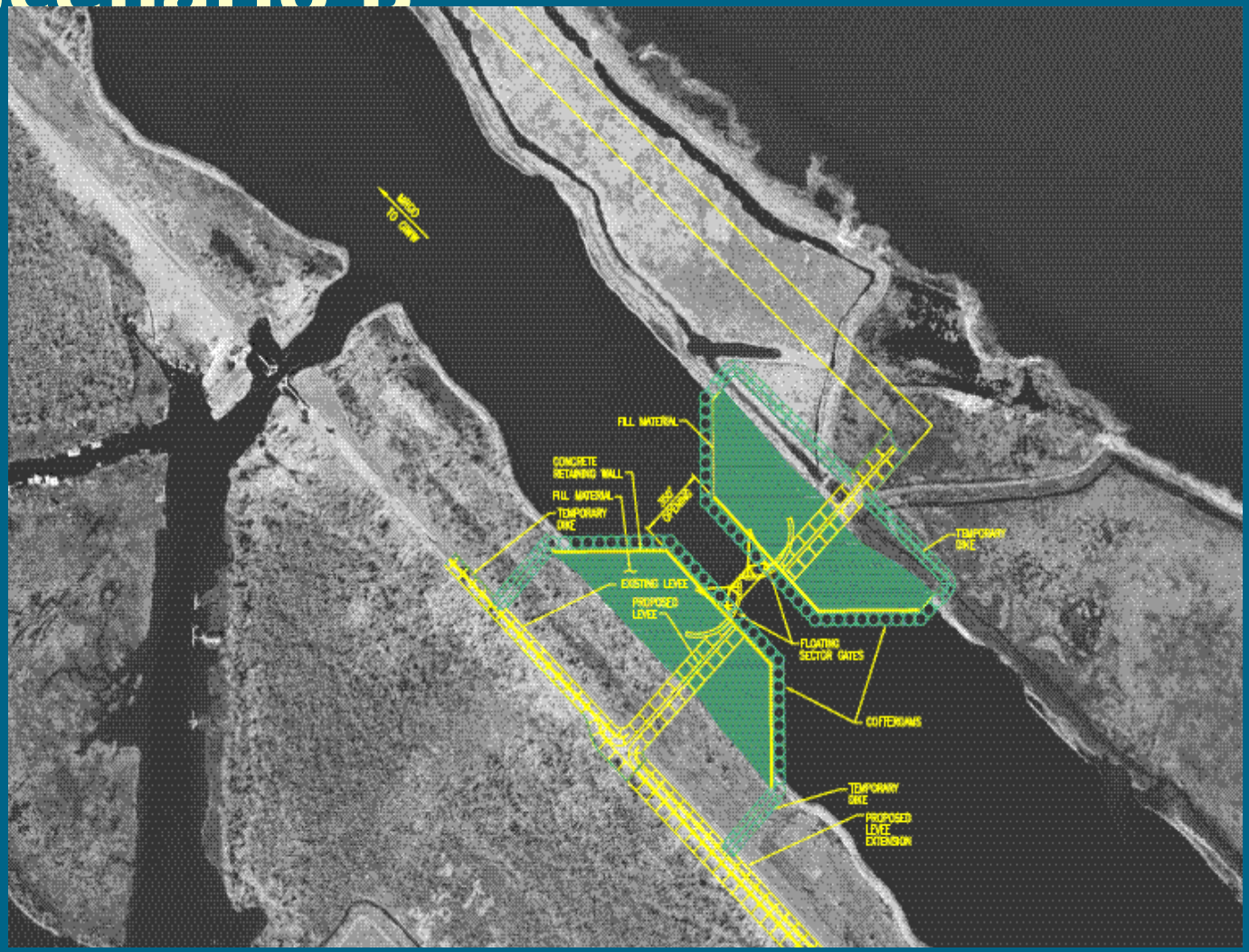
Alternative II – Alignment 2 – Scenario B



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Alternative III – Overall plan view

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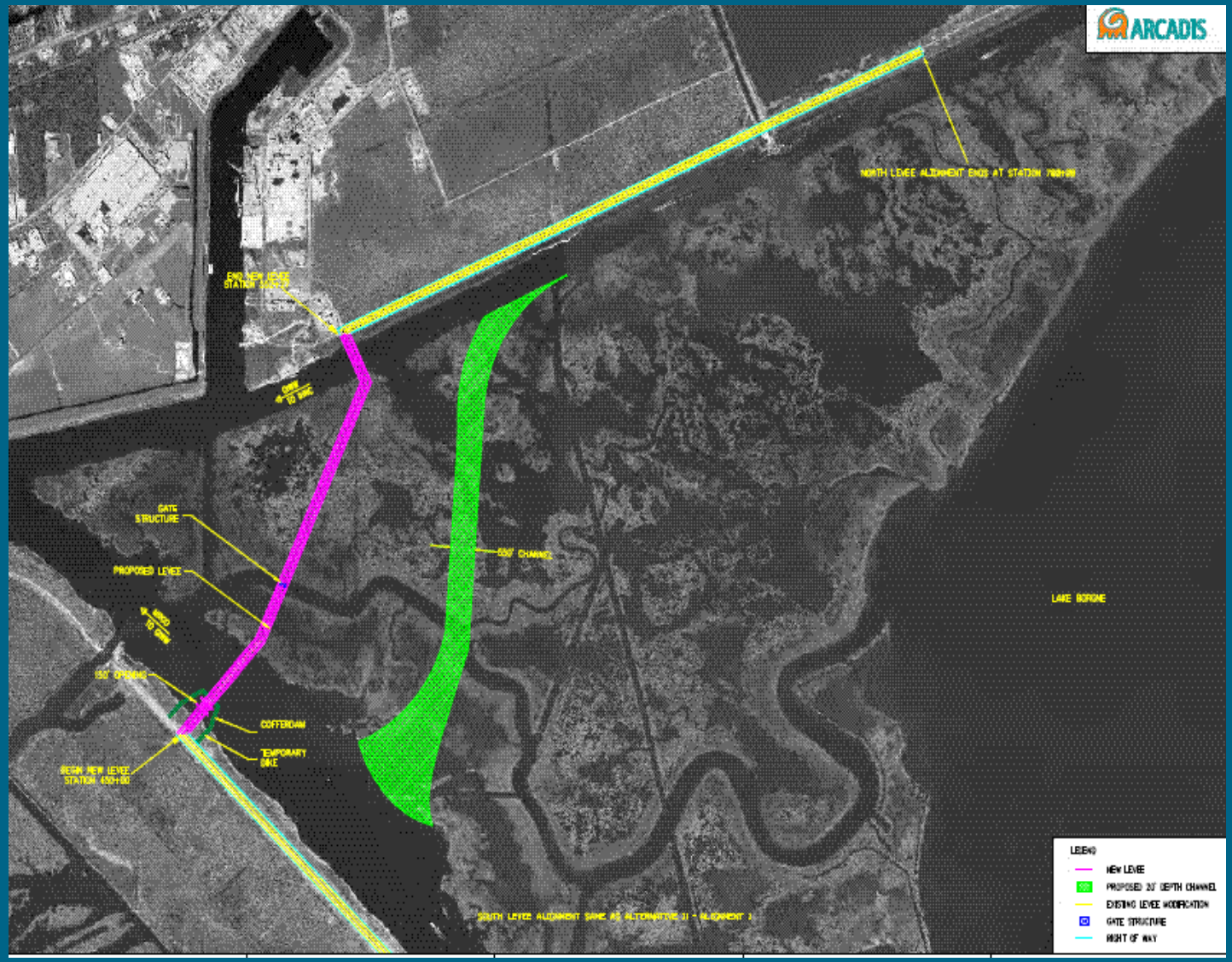
Alternative IV



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Discussion

- Comparison and evaluation of alternatives
- Integrated part of defense system
- Design storm
- INHC and GIWW gates: innovations or copies
- Outer barrier: second line of defense GIWW
- Interim structures
- shipping

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